

161st Air National Guard

Boundaries:

The 161st Air National Guard Base (ANG) is located on the southwest corner of a 50.7 acre site at the Phoenix Sky Harbor International Airport (PSHIA), between the south runway and the Salt River Channel. The facility was relocated in 2001 for the expansion of the runway network at PSHIA.

Site History:

- In 1951, the federal government authorized the construction of a new National Guard Base at PSHIA. The land is owned by the City of Phoenix (COP). The 197th Fighter Squadron was the first occupant of the new base. In 1960 the squadron was renamed the 161st Fighter Group. In 1961, the group was redesignated to the 161st Air Transport Group to fly cargo/passenger missions for the Military Air Transport Command until 1968. From 1968 to 1972, the Phoenix Air Guard was designated as the Aeromedical Airlift Group. The 161st Air Refueling Group has occupied the base since 1972.
- Throughout the history of the base, a number of fighter, cargo, and air refueling aircraft have operated from the base. Typical activities at the site included aircraft fueling maintenance, ground equipment maintenance, and other associated activities.
- Over the years, waste streams at the site have included fuels and oils, various solvents and paint thinners, and other chemicals. In the earlier years of site operation, many fuels and oils were disposed of through an oil/water separator and then to a storm drain. Some flammable wastes were disposed of at the airport's Fire Training Pit.
- The 161st ANG is a part of the Installation Restoration Program (IRP). In July of 1988, a preliminary assessment (PA) of the site was completed. The PA identified four areas of potential contamination.
- Remediation activities began in December of 1990. Activities included a soil gas survey, geophysical testing, monitoring well installation, piezometers, and regular groundwater monitoring events.
- In 1992, the National Guard Bureau (NGB) completed a draft final site investigation report. According to the report, benzene, ethylbenzene, tetrachloroethene (PCE), trichloroethene (TCE), dichloroethene (DCE), and dichloroethane (DCA) were detected in the monitor wells at the base. The NGB installed 12 new monitor wells as part of the IRP Site #6 (Petroleum, Oils, and Lubricants storage area) source characterization. The COP installed three monitor wells.
- The most significant contamination problems appear to be associated with petroleum hydrocarbons, specifically benzene, at IRP Site #6. In this area, soil contamination is evident. Groundwater contamination from this area includes a plume of benzene that remains within the borders of the facility, and well within the borders of the PSHIA.

- From 1996 - 1999, an interim remedial action (pilot test) was performed. The pilot test consisted of a soil vapor extraction (SVE) and air sparge (AS) system. Large quantities of methane were removed during this time.
- In June of 1999, a decision document presenting the selected soil remediation action was signed. The selected remedy included a SVE and AS system. In April 2000, a final action memorandum was prepared by the 161st ANG.
- In February of 2001, the SVE/AS system was initiated.
- Groundwater sampling events occur quarterly.
- Quarterly groundwater sampling events continue to occur as scheduled. Benzene in the groundwater has been reduced to below the Aquifer Water Quality Standard (AWQS) of five parts per billion (ppb). As of January 2003, the air sparge portion of the treatment system has been shut down due to concentrations below AWQS for the past four quarters. The site is in a rebound period that will last for up to 12 months. Groundwater monitoring will continue during this rebound period.
- The March 2003 Quarterly Groundwater Monitoring Letter Report was received by ADEQ. Depth to water measurements were collected from all 22 groundwater monitoring wells. Due to the continued decline in water table elevation, the saturated thickness in monitoring wells 06-013MW, 06-021MW, 06-022MW, and 06-024MW has been reduced to less than three feet. As a result, there may not be sufficient water in these wells to allow sample collection during the June 2003 monitoring event. Free product was not measured during this event as sampling has changed to a semiannual schedule as of December 2002.
- From April to June 2003, 5,306 lbs. of volatile organic compounds were removed by the SVE system and 19,859 lbs. of volatile organic compounds (VOCs) were removed by natural attenuation.

Site Status:

- Groundwater monitoring continues as benzene levels remain non-detect.

Site Hydrogeology:

- The 161st Air Refueling Group is located within the Basin and Range Physiographic Province. The Basin and Range Province is characterized by broad sloping valleys bounded by steep fault-block mountain ranges.
- The site is located in the West Salt River Valley sub-basin of the Phoenix Active Management Area (AMA). Valley-filled deposits lie beneath the West Salt River Basin and these deposits are underlain by metamorphic, granitic, and extrusive rocks that form an impermeable hydrologic barrier. The valley-fill deposits are the main sources of groundwater. Based on lithology, the valley-fill deposits can be divided into three water

bearing strata. The top layer is the Upper Alluvial Unit. Beneath this layer is the Middle Fine-grained Unit. The bottom layer is the Lower Conglomerate Unit.

- The Lower Conglomerate Unit can be divided into two sub units based upon grain size, clast type, and stratigraphy. The lower part of this unit is moderately to well-cemented mudstone or siltstone that may be evaporitic; sand; gravel conglomerate, and massive deposits of gypsum, anhydrite, and halite. Course grains may appear locally in the lower part of the unit, and wells drilled to these areas may yield up to 2,100 gallons per minute. The upper part of the Lower Conglomerate Unit Consists of weakly to moderately cemented clay, silt, mudstone, gypsiferous mudstone, gypsum, sand, and finely grained gravel.
- The Middle Fine-grained Unit consists of weakly consolidated silt, sand, gravel and clay and ranges in thickness from 100 to 800 feet throughout the sub-basin. It is made of mostly unconsolidated silt, sand and gravel. The unit ranges from 400 feet thick to less than 200 feet thick.
- The primary source of water in the valley-fill deposits is the Upper Alluvial Unit. This unit consists mostly of unconsolidated silt, sand, and gravel.
- Groundwater is usually unconfined, but semi-confined conditions may occur locally where there is an increase of finer grained materials. Perched conditions are also known to occur.
- Groundwater flow is usually to the west - northwest direction and occurs from 70 feet to 80 feet below ground surface.

Contaminants:

Contaminants of concern include: benzene, toluene, ethylbenzene and xylenes (BTEX). Currently these compounds are below AWQS in the groundwater beneath the site. Contaminants of concern may change as new data become available.

Public Health Impact:

The benzene groundwater plume is limited to the site and has not affected any water supply wells. There are no known health risks associated with subsurface soil contamination at this site.

Community Involvement Activities:

No community involvement activities are planned at this time.

Information Repositories:

Interested parties may review site information at the ADEQ main office located at 1110 W. Washington Street, Phoenix. Site information at ADEQ is available for review Monday through Friday from 8 a.m. to 5 p.m. To arrange for a time to review the public site file, please call the ADEQ Records Center at (602) 771-4378 or (800) 234-5677 (Arizona toll free).

Contacts:

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*In Arizona, but outside the Phoenix area, call toll-free at (800) 234-5677.